

**MICRO-FABRICATED OPTICAL WAVEGUIDE
FOR USE IN SCANNING FIBER DISPLAYS AND
SCANNED FIBER IMAGE ACQUISITION**

Related Applications

5 This application is based on a prior copending provisional application Serial
No. 60/253,445, filed on November 27, 2000, the benefit of the filing date of which is
hereby claimed under 35 U.S.C. § 119(e), and is a continuation-in-part of U.S. Patent
application, Serial No. 09/850,594, filed May 7, 2001, ^{pending} the benefit of the filing date of
which is hereby claimed under 35 U.S.C. § 120.

Field of the Invention

10 The present invention generally relates to optical fiber scanners, and more
specifically, to a micro-fabricated optical fiber that is driven at resonance to scan a
relatively large field of view.

Background of the Invention

15 Most optical scanning applications use a moving mirror, either rotating or
oscillating. A laser beam is often projected onto the moving mirror to scan the beam
across a specified linear or two-dimensional (2D) (raster) pattern at a frequency that is
sufficient for the particular application. For optical displays, the field of view (FOV)
is determined by the scanning amplitude and the particular optical design. There is a
20 minimum frequency (rate) at which scanning displays need to be refreshed, which is
determined by the human perception of flicker from a scanned display. For
ubiquitous raster scanning displays, such as cathode ray tubes (CRTs) used in
televisions and computer monitors, the display refresh rate is typically 30 to 60 Hz.
Although a CRT employs an electron-beam for scanning an electro-optical display
25 screen, the same requirements for scan frequency and amplitude (that determine the
FOV) generally apply for all types of scanning displays. Thus, for a super video
graphics array (sVGA) display having a CRT resolution of 800x600 pixels, the